

Facilities Quarterly

ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY ♦ FACILITIES DIVISION NEWSLETTER

FALL
2004

Berkeley Lab's New Crane a Cooperative Effort

Everyone's familiar with Berkeley Lab's mission to support science by sustaining a safe workplace and investing in cost-efficient equipment, but every now and then we're reminded that this is made possible by the ability of organizations to collaborate across division and department lines.

Just ask Rigging Supervisor Kevin Trigales who, along with Assistant Crane and Elevator Coordina-

tor Steve Wright, Technical Services Manager Dennis Nielsen, and Facilities Division Director George Reyes, worked closely with Procurement's Jean Lawther, the Principal Subcontract Administrator for Facilities' Operations and Maintenance, to buy a new 60-ton capacity crane that would be able to navigate the Lab's narrow, steep roads and meet its budget.

According to Trigales, Berkeley Lab "...used to have its own crane, but it ended up breaking [in 1997]; at the time, we didn't have enough funds to buy a new one, and we've been renting a crane since May 1997."

While renting can offer a cheaper alternative for short-term use, Trigales later found that Berkeley Lab's needs would require that they rent a crane every month. But after seven years of DOE-approved leasing, at \$3,400 a month, it became apparent that it would be more cost-effective to buy a crane. According to Wright, "The average lifespan of a crane used every day by a typical 'outside' company is twenty years. The Lab's new crane won't be used every day, which extends its lifetime beyond the



The Terex AC50-1 arrives. (photo by Roy Kaltschmidt)

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FACILITIES PROFILE: Jerry Ohearn

Most mornings Jerry Ohearn boards Amtrak's Capital Corridor in Davis and settles in with a newspaper, his laptop, and a cup of coffee for the 67-mile ride to Berkeley's Fourth Street Station.

"I love drinking coffee. That's one of the reasons the train works out for me so well," Jerry explains. The train is also clean and comfortable, the food is "actually edible," and Jerry enjoys the camaraderie with the other passengers. "You almost always see the same folks," he says, "and it's the same conductor, so it really is like a family."

If you think Jerry's commute is all about relaxation, though, consider the last three miles and 750 vertical feet, which begins when he detrains with his bicycle at Fourth Street.

Jerry started using a bicycle for transportation some 20 years ago, as an undergraduate at UC Davis. Upon graduation he went to work at UC Davis as a civil engineer in their facilities department, and continued riding his bicycle to work.

In Davis, the "Bicycle Capital of the US," this is normal behavior. There are bike paths everywhere, and, moreover, the terrain is flat.

Now that he is Manager of Facilities' Design and Construction Department, Jerry still rides his bike to work, but, in Berkeley, this required an

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Facilities Quarterly is available online at <http://fac.lbl.gov/Facilities>.

New Crane *continued from page 1*

average." At a cost of \$425,000 for the new crane, that comes to approximately \$1,770 a month for twenty years, ap-

proximately \$1,630 a month less than the cost of renting.

Adds Nielsen, "Our whole intent

was to provide our customers a more cost-effective service. When we were leasing [a crane], we had to charge a service fee to cover that cost."

Buying a crane also creates a safer working environment. According to Wright, "At one point, we thought of buying a used crane," but Wright, Trigales, and Nielsen didn't want to compromise Lab employees' and crane operators' safety by investing in a crane with a questionable maintenance history and lifespan.

Trigales' research eventually led him to the Terex AC50-1 all-terrain crane, which is more compact than other cranes of its capacity. "We were leasing a 30-ton, 9-foot-wide crane — too wide for roads the Lab," explains Trigales. "The Terex, with its slimmer 8-foot-wide body, won't interfere with traffic, and will stay within the yellow lines of the Lab's narrow roads."

Once Trigales, Wright, and Nielsen found the right crane, they sought Lawther's help to begin the procurement process. According to Lawther, buying large, expensive equipment under DOE guidelines can sometimes require the support of multiple Laboratory organizations. "For an order like this you need capital funds; [at the time], Facilities didn't have capital funds." With Division Director Reyes' support, Lawther, Trigales, Wright, and Nielsen requested and received General Purpose Equipment (GPE) funding from the Director's Action Committee (DAC). "This was a cooperative effort between all divisions," Lawther explains.

Lawther began to solicit bids in October 2003, and the bid was awarded to Cal Crane and Equipment of Tracy, California, in March 2004. The Lab's new addition was delivered in August 2004.

Before being put to work, the crane was state-certified as received at a capacity of approximately 9,000 lb. The

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FROM THE DIVISION DIRECTOR...

We are well into the first quarter of the new fiscal year, and our plates are full. We are emerging from the distractions of the national elections, looking forward to the holidays, engaging in the competition for the Berkeley Lab DOE contract, and adjusting to the dynamic new leadership style of Lab Director Steve Chu. On top of all this, we still have our normal, challenging workload to deal with.

As you read this issue, you will find a summary of the tragic incident at the Savannah River facility. I intended with this article to improve everyone's understanding of the incident and how close to home it hits for many of us who work in construction, maintenance and transportation. Sadly, when I suggested this article, I had no way of knowing we would now be in the midst of another Type A investigation at our sister lab at SLAC. By now, everyone should know that an electrical incident at SLAC has left a contract worker severely burned and fortunate to be alive. As a laboratory, SLAC has been shut down since mid-October, with no restart date yet established. Dennis Nielsen, Kevin Trigales, and Tom Caronna spent a week at SLAC assisting in a review of electrical, hoisting and rigging practices. Other areas of SLAC's operation are also being reviewed. Suffice it to say that SLAC has been tremendously impacted, and the full cost in lost science, workforce impacts, and human suffering may never be fully determined. It is a sobering thought that the same thing could have happened at LBNL or any of the other DOE laboratories.

Certainly such unfortunate incidents reawaken safety awareness, and generate new procedures and updated training programs. This is as it should be, but we must also find in these incidents a true learning experience. The best lesson learned from tragedy is that it is a very personal thing. Safety is also a very personal thing. Each of us needs to focus on coming to work, giving our best, and returning home to our families as healthy and as whole as when we last saw them. The Laboratory's efforts to provide a safe environment focus on each and every individual, on the personal level. As the Division Director, I am not concerned with checking a box or filing a form that shows we have an elaborate safety program; I am concerned with going home at night knowing we have done the best we can to protect each and every one of you. If we all embrace this same objective, and internalize it as one of our personal core values, safety will move from a watchword to a way of life.

With the holidays approaching, I honor each and every one of you who has worked safely this past year and, especially, those whose additional contributions have enhanced the safety of your co-workers and subcontractors. As we move into the new year, I challenge you to join the Laboratory leadership in making LBNL a model for safety, not only for ourselves, but for every guest and visitor who comes to help us advance science.

Together we will make this an even better place to advance science.

George Reyes

FOCUS ON SERVICE: An Interview with Steve Black

At 7:00 AM on September 8, Plant Operations Department staff gathered in the Building 50 Auditorium for an all-hands meeting. The topic was "Operational Improvements," and, for the next hour and a half, Department Head Steve Black presented a detailed account of the findings of the Red Team and the Jack Hug Report, along with the organizational changes planned to address those findings. Key points of the talk included the need for better coordination and focus in the Department, more clarity of purpose, and a greater sense of ownership by staff of the Department's mission. The revamped organizational structure unveiled by Black features five "work centers" (see figure on page 7) whose managers will report to the Department Head. Facilities Quarterly sat down with Steve recently to talk about the issues raised at the all-hands meeting and the changes that the reorganization will bring to Plant Operations.

FQ: Can you give us some background on the Red Team and Jack Hug Report?

Black: The idea of bringing in an outside consultant to look at how we do business was actually George Reyes' when he came in as Division Director - even before he made the decision to restructure Facilities into three departments.

FQ: The three departments being Design and Construction, Plant Operations, and the future Site Services Department.

Black: Right. Its not uncommon for a new manager to bring in a consultant to look at how the



organization is structured, review the processes and people, and identify problems and the basic condition of the organization. The Red Team was called in to look at our contracting practices, how we organize projects and how we get work done.

That process uncovered several underlying cultural issues that were being raised by the employees. At that point George contracted with Jack Hug, who was a member of the Red Team, to come back and do a specific organizational development review, based on talks with employees, to figure out what's working and what's not working in the organization. That report had the findings that we shared at the all hands meeting. What it really says
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COMPLIMENTS

We all noticed the upsurge of paving at the end of FY04, and the resulting improvements in parking lots and roadways around the Lab. Design and Construction Department Manager Jerry Ohearn credits Civil/Structural Engineering's Steve Blair, along with Mike Elizalde (Laborers), Loretta Valentine (Safety Coordinator), and Sarah Morgan (Project Administrator), with the successful completion of these projects, noting that, "They were completed on time, on (if not under) budget and the quality is excellent....Also, there were no safety concerns on the projects. I am very proud of your and your team's work."

Jim Floyd of EH&S turned to Maintenance Manager Don Weber and the HVAC&R technicians to procure, install and start up a new air conditioner in his dosimetry lab in time for an impending DOE audit. According to Floyd, "It turned out to be absolutely essential to us, as the first question [DOE] asked when they entered the lab was, 'What are your environmental controls and how do you monitor them?' I am convinced we would not have passed had we not been able to point to the air conditioner."

WORK REQUEST CENTER

Telephone	6274
Fax	7805
E-Mail	WRC@lbl.gov
Mailstop	76-222
Web	web3.lbl.gov/wrc

WRC welcomes questions or comments about Facilities Quarterly.

Steve Black *(continued from page 3)*

is that we don't work well together.

FQ: We have cultural and organizational issues and they seem to be bound together?

Black: They are bound together. The Lab's culture has developed over time, from the scientific side. In Facilities especially we have reacted to the needs of our clients, and that's how the organization developed. From

what I can tell, looking at Technical Services and Operations and Maintenance, the maintenance function is not organized around any standard model.

FQ: You mentioned at the all-hands meeting that it—the organization—is unique.

Black: It is unique. When I came on board and got into the organiza-

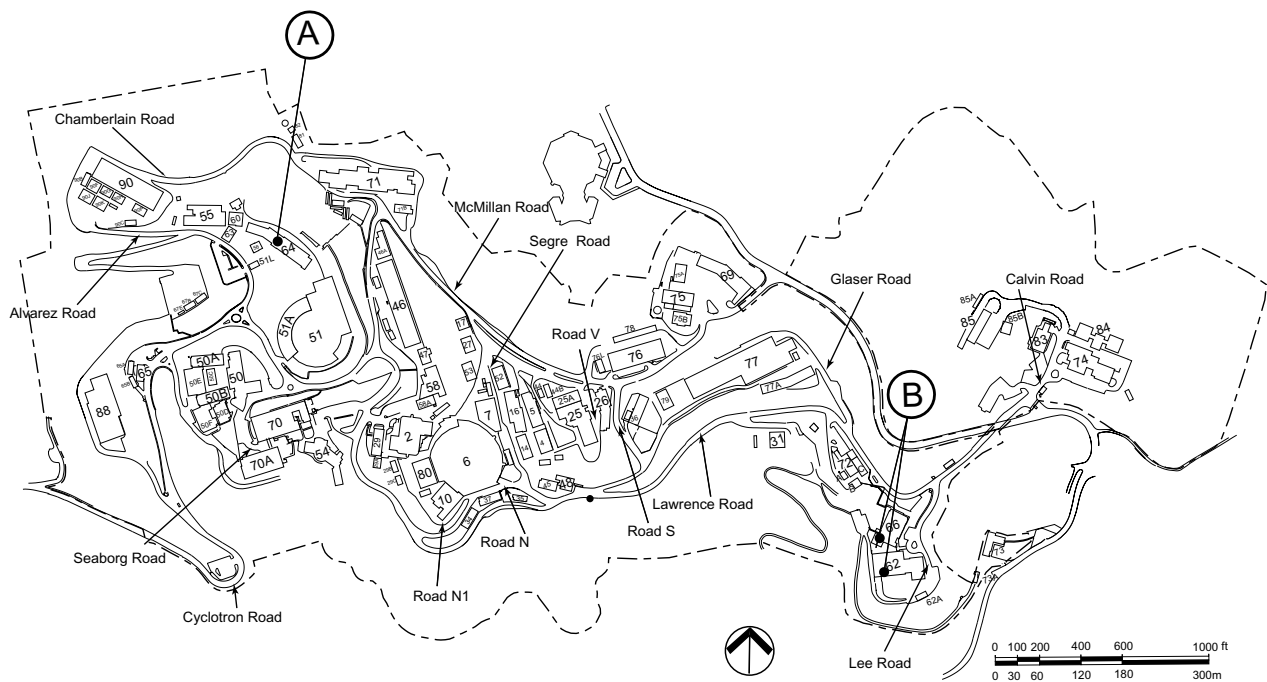
tion deep enough to realize this, what I found is that we're really working much too hard. We had hard-working, dedicated people who knew how to get the job done, but it required an inordinate amount of time coordinating parts of the project.

FQ: How did we get to this point?

Black: My perception is that the *continued on page 6*

CONSTRUCTION AND YOU

Current construction projects affecting parking, or vehicular or pedestrian circulation



Project Contacts. The name in parentheses after each project is the Project Manager (PM) or other person who is responsible for project oversight: coordinating all phases from design through construction; controlling cost, scope and schedule; and ensuring client satisfaction. This person will be happy to answer any questions about the project.

A Bldg 64: Addition of Labs and Offices

OCT	NOV	DEC
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Construction of labs and offices will impact access to Bldg. 64 and areas to the east and west. Occasional obstruction of traffic may occur. While work continues on the drainage system outside the building. (Bill Wu, x5216)

Bldg 72, 62, 66: Molecular Foundry Ramp-up Project

OCT	NOV	DEC
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Construction will impact access to Buildings 72, 62, and 66. (Bill Wu, x5216)

"CAUTION—CONSTRUCTION AREA"

Construction barricades and warnings are there for your protection. Under no circumstances should you cross a construction barricade, or disobey posted warnings or directions. Contact the Project Manager for escorted access to construction areas.

ON THE DRAWING BOARD

projects in study or conceptual design

Animal Care Facility

A new building is being planned for a site in the Life Sciences Research Cluster in the East Canyon. The building will contain space for animal holding and support functions. This project is proposed for GPP funding in FY 2005 and FY 2006. (Richard Stanton, x6221)

User Support Building

This 30,000-sq-ft (2800 sq-meter) building will be located on the site of the current Building 10. The project will be double the size of Building 10 and provide modern research support space and offices. Currently, the project is included in the DOE FY 2006 funding cycle, with a planned occupancy in FY 2009. The USB will support researchers at all of LBNL's User Facilities and provide additional staging area for ALS experiments. (Richard Stanton, x6221)

IN PROGRESS

funded projects

Building 77: Rehabilitation of Building Structure and Systems, Phase 2

This project will correct mechanical, electrical and architectural deficiencies in Buildings 77 and 77A. Design is underway. (Marty Baron, x4135)

Bldg 90: HVAC Upgrade Project

This project used a technology invented by EETD scientists to seal leaks totalling approximately 10,000 cubic feet per minute (cfm) in the building HVAC system. Air conditioning installation was completed in June. Final testing, adjusting and balancing is planned after damper repairs and modifications. (Marty Baron, x4135)

Molecular Foundry

Berkeley Lab's newest User Facility, the Molecular Foundry, will be constructed near the Building 72 complex. It will consist of a research building of about 89,000 gross sq ft (8300 gross sq meters) and a utility center of about 6,000 gross sq ft (560 gross sq meters).

The research building will have state-of-the-art clean rooms for the design, modeling, synthesis, processing, fabrication and characterization of novel molecules and nanoscale materials. Offices and laboratories will support nanoscale research in materials science, physics, chemistry, biology, and molecular biology. Construction of the Molecular Foundry began in December 2003. The building foundation was completed in June and July, and the installation of the waterproofing and 12-in. shotcrete wall is underway, with completion expected in late October. Structural steel installation will begin in November. See the Foundry Construction Project website at <http://fac.lbl.gov/foundryproject/> for up-to-date information. (Joe Harkins, x7486)

Molecular Foundry Ramp-up Project

This project will provide interim space for Molecular Foundry nanoscience research until the Molecular Foundry is complete. Work involves renovation of labs in Buildings 2, 62, and 66. (Bill Wu, x5216)

Steve Black *(continued from page 4)*

organization was built over time. It started out small and then, when some new need came along they just tacked a new function onto the existing organization.

The classic structure for maintenance organizations came out of World War II, when folks came home from the Navy, out of the boiler rooms of ships, and into American maintenance organizations. In the mid-forties most buildings had heaters and boilers that were very similar to a ship's. So you had your boiler mechanic, who turned into your stationary engineer, and your steam fitters, electricians, and carpenters, and that's how it broke down: the maintenance organizations grew out of this crafts-based model.

At Berkeley Lab this craft organization ended up getting split into Technical Services and Operations and Maintenance. This division causes confusion though, because the people providing the initial service response didn't always have the right skill sets to do the work, so the other group would have to be called in later.

FQ: The new organization's going in a different direction.

Black: It is. I went back and looked at the work we do. In the maintenance organization its pretty much either "its broke so I've got

to fix it," which is your service or emergency work, or preventive maintenance—"I want to fix it before it breaks." Those two activities work hand in hand most of the time, and the total number of staff will stay about the same. If you have lots of preventive maintenance then, usually, your "its broke I've got to fix it" drops. If you start cutting back on preventive maintenance then things start breaking faster. Over time the whole numbers will decrease, but for the most part the work just moves from one side to the other. The real benefit in the new approach is that our customers are less inconvenienced by building system breakdowns.

FQ: At the all-hands meeting you suggested there would be worker mobility between the work centers.

Black: There would. For example, the lab historically has year-end money to spend on infrastructure. If we plan for it we would systematically move people from Preventive Maintenance into the Construction Group to handle the increase in work. When the work is complete they would move back over into Preventive Maintenance. If we do it right we'll schedule Preventive Maintenance so that their workload is light during those last three months.

FQ: What about training and standards?

Black: That's a big concern. When you have all the electricians in one place, one supervisor can make sure that the training for those electricians is current. When you move one craft into three different sections, you're relying on three different supervisors to do all this. What I prefer is to centralize training and standards so that the supervisors have a resource that sets a standard across the whole department.

FQ: Another aspect of the work center concept is how it helps you un-



"...the quality of the work that I've witnessed here is just excellent."

derstand what your business process is.

Black: I think that's one of the major changes. Each work center will have its focus and ownership of a task. Instead of just coming to work and going home, the employees know why they're here. For example, Preventive Maintenance is here to improve the quality of our physical plant over the long term. Knowing that, you can focus on asking whether this is the right kind of work, the right amount of work, the best way of doing it. The Emergency Response people arrive here knowing their purpose is to respond quickly to an immediate need at a high level of customer service. And Construction gets to focus on building or rebuilding projects.

Each work center can have performance standards that focus on its unique goals. For preventive maintenance there's a yearly cycle of work that should be done. Air filters on HVAC could be set up for replacing every month or whatever the proper PM cycle is, and one way to measure performance would be the number of PM work orders that were completed on the cycle they were intended to be completed on. This gives you a measure of whether or not you're improv-

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"...We're really working much too hard."

Steve Black *(continued from page 6)*

ing. Over time you can look at your investment in preventive maintenance and see what's happening with corrective maintenance—emergency calls. Are they going up or down? It gives you the ability to know if you should be investing more resources in preventive maintenance, or if you're spending too much.

FQ: It becomes a cost management tool.

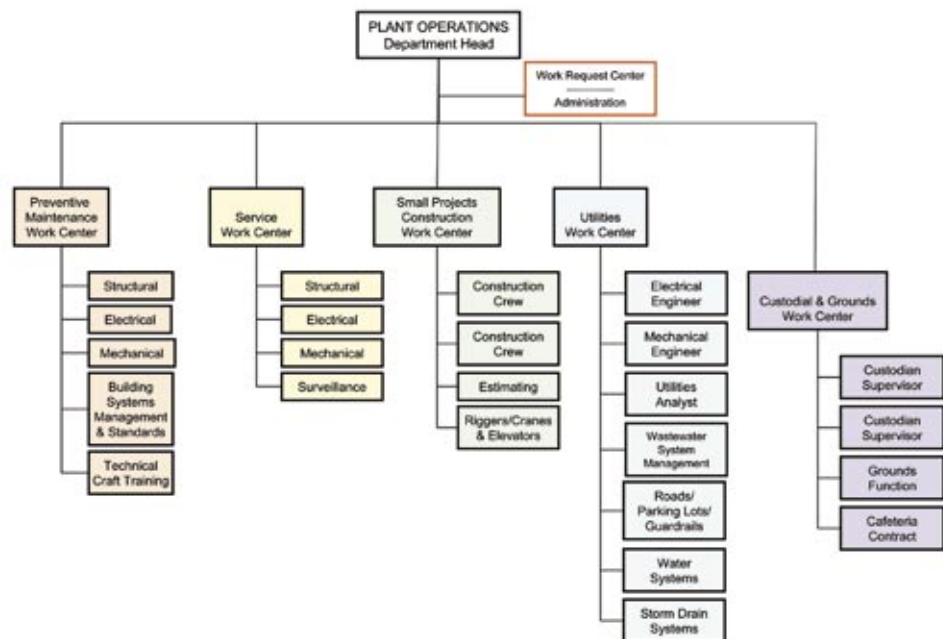
Black: Absolutely.

FQ: In the all hands meeting you talked about taking "ownership" of facilities. What does that involve?

Black: In almost every Facilities organization there is the separation between the people who fix things and the people who design and build them. In our organization Design and Construction has always designed and constructed the physical plant, and then it's turned over to the maintenance people to take care of - for the next 80 years. In the past it's generally been the case—not only here but throughout the industry—that the architectural design/construction/project management group has felt that they owned the facilities that they were designing and building. In the last ten years, though, there has been a recognition in the industry that, since they are going to be involved with it for 2 to 3 years and the maintenance people are going to be maintaining it for 60 - 80 years, that if anyone's the "owner" it would be the maintenance organization.

FQ: Will we see Plant Operations getting more involved in the design process?

Black: Actually, we are. [Design and Construction Department Head] Jerry Ohearn and I have



discussed this in great detail. First of all, we're developing design standards for the lab. These are the standards we would give an architect or engineer to design to. And those standards would be ones that were mutually agreed upon by Plant Operations and Design and Construction on an annual basis. Once we get the organization in place, Plant Operations will actually be in the design review process as the plans and specifications (title 1, title 2, title 3, to use the proper DOE terminology) are developed to ensure that they are actually designing things that Plant Operations can maintain.

FQ: What's the next step?

Black: The next step is going to be data gathering. In the next three months I'm going to be meeting with all levels of my staff to get their input. From that information we'll start putting some of the subunits in place, starting with activities that are not common across all maintenance organizations; for example, the riggers.

Then there's the staffing analysis

to determine how many people and what kind should be in each of the work centers. And of course there is that Utilities box, which is going to transfer responsibility from Design and Construction into Plant Operations, and the new standalone custodial and grounds section.

FQ: That's a lot of work.

Black: Sure it's a lot of work.

That's why it's going to take 12 to 18 months. I'm being realistic. This is a complex organization.

FQ: We've talked about changing the organization. What's right with it? What wouldn't you want to change?

Black: We have a lot of really highly qualified, good people. The quality of the work that I've witnessed here is just excellent. The craftspeople, all the employees really, do want to do a good job. Even before I got here they indicated that they want to see change, and they've also proven themselves to be resourceful in overcoming the problems of the old structure and getting jobs done.

SAFETY CORNER: Fatality at Savannah River Site

A Message from Director Reyes

A worker at the Savannah River Site recently lost his life after being crushed by a tractor hoe. The victim died of loss of blood after his femur and pelvis were crushed under the weight of the tractor as workers were trying to move it onto a flatbed truck.

This tragedy didn't have to happen. No job task here at the Lab is so important that we can't afford the time or extra effort to identify, analyze, plan for, and apply the proper resources and hazard controls to conduct the work safely. LBNL's Zero Tolerance policy (for unsafe work) mandates that work is planned and conducted safely. Whenever there is the possibility that any component of the work may cause injury or damage you must stop and reassess your work. You must secure the resources or proper equipment to complete the job safely.

This accident illustrates a failure in a number of areas. Consider current work that you are performing. Whether the task is moderately simple or complex, ask yourself - Have I done a hazard analysis? Do I have the

right tools, materials, safety equipment and personnel to do the work safely? Is there clear communication with all people involved (including sub-contractors)?

For further information on this accident go to the Lessons Learned Database at <http://www.eh.doe.gov/11/1ldb/11Search.CRM> and enter the Lessons Learned Identifier, 2004-SR-WSRC-0035.

New Crane

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crane will later be recertified for its full 60-ton capacity. All three crane operators, including Trigales, went through intensive training provided by the crane manufacturer to familiarize them with its features.

The Terex is a versatile piece of equipment whose uses will include setting transformers or air conditioners; lifting cargo containers, generators, compressors, and blowers; assisting gardeners with tree maintenance; steel erection; high-value, high-consequence lifts; and other public works Laboratory-wide. With its complement of optional equipment, the crane can easily lift 30-ton concrete roof blocks for the Bevatron (Building 51) Decommissioning. It has the reach to change rooftop air conditioners and the dexterity to move microscopes into and out of the National Center for Electron Microscopy (NCEM) Building (Building 72).

For information about crane services and costs, contact the Work Request Center.

Theresa Duque

Jerry Ohearn

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attitude adjustment. "While Davis is almost perfectly flat, Berkeley's not," Jerry explains, "So I took it as a challenge on how to get my bike up this darn hill."

Jerry's penchant for multitasking and taking on challenges, such as fitting a "built-in workout" into his commute, are well suited to his career in construction management, where the focus is to bring a large number of concurrent activities to a successful conclusion in the form of, for example, a new laboratory or office building.

In fact, as a civil engineering student at UC Davis, one of Jerry's favorite courses was Construction Principles, a construction management course. "I always thought this would be a neat class to teach," He recalls. Over the years, Jerry kept in touch with the department chair and, about five years ago, mentioned to him that he'd like to teach the course. "He kind of did the typical 'oh that's interesting.' Then, about a year or so later he sends me an email saying, 'Are you still interested in teaching this class?'"

Taking this on in addition to his regular job gave him pause, but, in typical fashion, Jerry gave it a try and "thoroughly enjoyed it." The students "were just great. At Davis they were exceptional." Now that he's at Berkeley Lab, one of his goals is to do the same thing at UC Berkeley. But it will have to wait: "I'm still new here. First I have to accomplish a few things." If the past is any guide, these "few things" will be accomplished simultaneously.

Facilities Quarterly

Editor: Jim Miller

Layout: CSO

Facilities Quarterly is published in January, April, July and October by the Facilities Department, Ernest Orlando Lawrence Berkeley National Laboratory.

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This work was supported by the U.S. Department of Energy under Contract No. DE-AC03-76SF00098

Ernest Orlando Lawrence Berkeley National Laboratory, University of California

LBNL/PUB-678 11/2004-4200

Printed on  recycled paper.